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ABSTRACT

A preliminary study of job-related communications skills in British Columbia sawmills investigated the extent of agreement between reading grade levels of written workplace materials and reading comprehension levels of employees expected to read them. In 1990, 227 employees in 8 sawmills were interviewed with a 52-item structured interview, a receptive vocabulary test, a series of cloze passages constructed from mill materials, and a nonverbal test of reasoning ability. All participants were given the entry-level cloze passage (grade 4.5 level); additional passages were administered until either a frustration level score resulted or the final passage (grade 17+) was completed. In total, 55.9 percent were not fully functional with the first passage. Two-thirds of employees would not take courses to upgrade reading, writing, mathematics, or speaking skills. However, when asked to specify conditions under which they would take courses, three-quarters of respondents indicated they would be more likely to take a course if: (1) it would help them get a better job; (2) it were needed to keep present job; (3) they were given time off to take it; (4) it were offered outside the mill; and (5) nonmill personnel were teaching. A significant number were found to have reading comprehension levels below what was needed to understand written workplace materials, and most reported they did not read on the job. (Appendixes include 55 references, cloze passages, interview form, and rationale for use of cloze passages.) (YLB)

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ED337622

A Preliminary Study of Job-Related Communications Skills in British Columbia Sawmills

May, 1991

For COFI and IWA-Canada
By JCP Research

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
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Thanks also to the men and women in each mill who worked hard to schedule our interviews and to provide comfortable space and endless coffee in their busy mills, even at 5:00 a.m.

Finally, a massive thank you to each of the 227 mill employees who agreed to be interviewed. Thanks for your honesty, for perceptive observations that helped improve our procedures, for your good humour and for teaching us a lot about sawmills.

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EXECUTIVE SUMMARY

A preliminary study of job related communications skills in British Columbia sawmills investigated the extent of agreement between reading grade levels of written workplace materials and reading comprehension levels of employees expected to read them.

In eight sawmills from different parts of the Province, 227 employees were interviewed with a 52 item structured interview, a receptive vocabulary test, a series of cloze passages constructed from mill materials and a nonverbal test of reasoning ability.

All participants were given the entry-level cloze passage (Passage 1.) which was written at a grade 4.5 level (an average student in the fifth month of grade 4 would be capable of reading the passage at an **independent** level according to DeSanti's [1986] categories). If an employee scored at the **independent** level on Passage 1., additional passages were administered until either a **frustration** level score resulted or until the final passage (grade 17+) was completed. **Participants were not given all passages.**

Forty percent of the 150 participants given Passages 4. and 5. scored high enough to be labelled **independent** readers on job-related material at or above the grade 12 level (See Table 9).

Scores from Passage 1. indicate that 38 (16.7%) of the 227 cannot deal with material written at the grade 4.5 level, and that 89 (39.2%) need help with it. In total, then, 55.9% of the 227 participating employees are not fully functional with Passage 1. (See Table 9), scoring at either the **frustration** or **instructional** level (DeSanti, 1986).

Results of the study permit a number of conclusions:

...A significant number of mill employees have reading comprehension levels below what is needed to understand much of the written material they face. At the same time, these employees indicate the material they deal with is 'easy' or 'about right' in terms of reading level. About two-thirds of them, however, seek assistance when they have trouble coping with this material.

...The reading level of written job materials needs to be addressed. Where possible, written materials should be revised to fit readers' comprehension levels.

...We do not know if there is any correspondence between reading comprehension level and job performance. Employees report they cope, through seeking assistance from a supervisor or fellow worker and through hand signing.

.. Low reading comprehension in B. C. sawmills is not exclusively related to language background, education or age.

...A significant proportion of employees at all reading levels are interested in taking courses designed to improve their reading, writing, mathematics and speaking skills. There are differences in preferences between groups, using DeSanti's categories (1986). For the group comprehending at the frustration level, reading and writing are the preferred choices. The instructional group show preference for mathematics courses and the independent readers express the strongest interest in improving their speaking skills.

... Research literature provides ample evidence that crash programs in general literacy for adults in an educational context have not worked (Sticht, 1986, 1987). To improve the reading comprehension levels of employees, it would seem necessary to design training programs around work related materials.

This is not a simple group. Participants represent an extremely interesting group of verbally articulate employees with varied language backgrounds, education levels and reading comprehension skills across the age range. If improving reading comprehension is the goal, it is clear that a unilateral approach probably would not work, and that any method should be geared to job materials.

Further, we emphasize that this is exploratory research designed as one of four continuing studies. Results should be interpreted with that in mind.

Finally, job training and general literacy enhancement appear to be separate issues. It seems important for industry to decide which is the objective before implementing programs.

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INTRODUCTION

This report provides details of a preliminary study undertaken in eight British Columbia sawmills during 1990. The study constituted basic exploratory research into the extent of agreement between the reading level of workplace materials and the comprehension skills of employees for whom those materials were aimed. The study was funded by the Literacy Secretariat, Secretary of State, Ottawa, Canada through the auspices of the Council of Forest Industries (COFI) and with the cooperation of IWA-Canada. It was intended that this study represent a preliminary investigation — the first of four study phases. The proposed second phase would produce an overall design and the necessary materials for a Job Skills Communication Program. The third phase would see the implementation and evaluation of the program in a controlled environment. The final phase would involve the production of a major report and recommendations regarding the program.

There are four parts to this report: an introductory section describing the background and aim of the study; a section outlining the study sample, instruments and data collection procedures; a results section; and a section summarizing the study's findings and presenting supportable conclusions and implications from the data.

Background

"The level of literacy in the workplace is . . . determined . . . by the literacy needs of the workplace" (Fagan, 1990, p.11). This statement highlights the relationship between literacy needs and actual literacy levels in the workplace. Studies which examine workplace literacy levels need to consider this relationship when analyzing workplace demands. Literacy levels which are inadequate for the reading demands of the workplace can contribute to feelings of frustration and inadequacy. These feelings may in turn have negative effects on job performance through restricted worker productivity, accidents, job avoidance and other related factors — all of which have economic implications. The economic impact of these factors on British Columbia's forest industry has never been assessed, possibly because to conduct an assessment would be a mammoth undertaking. It can be assumed that, given the size of the industry, costs are high enough to warrant investigation in areas that represent central issues around workplace literacy, however one defines it.

In this study, central issues reflect concerns at four levels. The first is that of the individual worker; workers with literacy problems fear discovery because they often believe their jobs will be jeopardized if their reading/ writing problems are discovered. These employees can refuse promotions to jobs requiring paper work and develop elaborate avoidance strategies to cover up. The cost to these individuals is significant, both psychologically and economically.

The second level of concern reflects union advocacy for enhanced worker employability, worker safety (especially with respect to hazardous sites or materials) and worker rights and responsibilities in the workplace. The reading comprehension levels of workers also can influence directly the ability of unions to keep their members informed.

Management concerns are the third level where literacy problems can have negative effects. Many industries, sawmills included, are moving to computerized production systems which shift the roles of many workers from hands-on to monitoring. These new roles may or may not require higher levels of literacy than production roles. One point of view argues that automation deskills workers with respect to literacy demands and that *"the worker is stripped of all knowledge of or participation in the process as a whole and is relegated to the endless repetition of these simplified tasks"* (Brown, 1990). On the other hand, inadequate literacy levels may affect safety and productivity. Whether one subscribes to the deskilling or to the enhanced requirements view, such concerns warrant careful examination of literacy questions.

The final level of concern is the domain of the equipment supplier. Equipment suppliers have a strong need to provide manuals and training which focus on the safe operation of their equipment. This need is particularly acute when workplaces have to rely on manuals because they lack training programs. Equipment manuals need to be written at a level that is appropriate for employees' comprehension skills.

To address the above issues, the study focused on the sawmill industry in British Columbia. The literacy demands and employee characteristics in sawmills reflect those of the forest industry in general. Consequently the findings of this study could have potential for wide application.

Aim

The basic aim of the study was to see if there was a fit between the level of written workplace materials in British Columbia sawmills and the comprehension skills of employees who need to read them.

DESIGN AND PROCEDURES

This section of the report describes the sample, instruments and data collection procedures used in the study. The reader is provided with a general overview rather than a technical exposition.

Sample

The initial research design called for the participation of two British Columbia sawmills randomly chosen from each of five official geographic regions defined by the Provincial government adding stratification variables of mill size and level of technology. Randomly sampled employees, both hourly and salaried, would then be interviewed and administered a set of instruments. Unfortunately, the study was initiated at a time when mills were facing seasonal and market curtailments. Also it was difficult to convince employees that results would be kept confidential at a time when jobs were perceived to be at risk. Too many mills in the original sample declined to participate for an appropriate random sample of mills to be obtained. Consequently, results from the analysis of employee data can be generalized only to employees in other mills with similar characteristics. However, scores from participants cover the range measured by the various instruments and thus could be representative of the general population of sawmill workers, though not in a statistical sense.

A pilot study was conducted with 43 employees in one mill. Pilot results encouraged the modification of certain data collection procedures. Data from the pilot mill are therefore different from the rest and are excluded from this report. The introductory process used in the pilot mill is worth noting:

> *We followed a procedure suggested by the Personnel Manager in the pilot mill which was later modified to be site specific. First, the Steering Committee secured the cooperation of mill management. Second, the JCP Research group and the Steering Committee met several times at the mill with the Personnel Manager, the Plant Committee Chairman and the Supervisors. Next, the Personnel Manager published a description of the project in the mill newsletter. He explained that 50 employees, hourly and salaried, would be selected at random; and that there would be meetings in the lunchroom to explain the study, conducted by himself and by members of the Safety Committee.*
>
> *Then, two members of the Safety Committee personally contacted each randomly selected employee. The selected employees were asked to attend a meeting with the JCP Research interviewers, who would answer any questions before employees agreed to participate. We met them in two groups of 25. Their questions were numerous, about confidentiality, method and results. After the meetings, 100% agreed to participate* (Goetz, 1991, p. 138).

The final sample consisted of 227 salaried and hourly employees in eight mills in various British Columbia locations. Samples of introductory materials used to acquaint mills with the study appear in Appendix A.

Employee Reactions to the Study

Even in cooperative mills, employees often were reluctant to be involved. When it was apparent that the randomness of the within-mill sample was threatened, employees who participated in the first two mills were asked to respond anonymously to two questions. The first question asked what the employee's thoughts and feelings were before the interview. The second question asked for reactions after the interview session. Respondents gave permission for their statements to be typed and shown to employees in other mills. Positive comments seem to lead to improved participation rates in other mills. Responses appear in Appendix B.

Instruments

Four instruments were used to collect data for the study.

Structured Interview Guide.
The first instrument (see Appendix E) was a 52-question structured interview guide on Background Information, Language Use, Education and Certification, Communication on the Job and Training Courses and Needs. The instrument was designed expressly for the study, piloted first on a small sample of adults, revised, tried in the pilot mill and revised again.

Peabody Picture Vocabulary Test - Revised (PPVT-R)
The second instrument was the PPVT-R (Dunn and Dunn, 1981). The test provides a standardized measure of oral or receptive vocabulary using pictures instead of written materials. The PPVT-R was also selected because of its high interest value and short administration time.

Cloze Passages.
The third instrument consisted of five cloze passages (See Appendix C). Cloze passages are paragraphs which have blanks replacing every fifth word. Examinees fill in the missing words based on their understanding of the passage which yields a reading comprehension score. Four of the passages were selected from actual written mill materials collected by the Council of Forest Industries at the request of the researchers. Interestingly there were no mill materials written below the grade 6 level. So one passage had to be contrived for a simpler entry level (grade 4.5). The reading levels of the five passages then ranged from grade 4.5 (mid-grade 4) to grade 17+ (post-university). Cloze tests developed from actual instructional, informational and safety mill materials were chosen because they:

1. provide a measure of the reader's ability to comprehend;
2. are less of a threat than most commercial comprehension tests;
3. relate concrete, real and relevant content with readers who have knowledge and experience of the situation and its purpose;
4. are relatively easy to construct; and
5. are inexpensive to administer and assess.

A more complete discussion of the use of cloze tests with adult comprehension in the workplace appears in Appendix D.

Standard Progressive Matrices.
The final instrument was Raven's Standard Progressive Matrices (Raven, Court and Raven, 1986), a non-verbal test of reasoning ability based on completing abstract puzzle figures. Like the PPVT-R, the Raven is nonthreatening, interesting to most, requires no reading and is easy to administer. Studies have also shown it to be free of cultural bias, a decided advantage when one needs a fair measure across different ethnic groups.
The four measures provided a reasonable overview of individual background information, reading level, receptive vocabulary level and (from the Raven) *"ability to form comparisons, to reason by analogy, and to organize spatial perceptions into systematically related wholes"* (Sattler, 1989, pp. 308-309).

Data Collection

Data were collected from each participant by one of four interviewers — two registered psychologists and two retired educators — as shown in Table 1.

Table 1

Number of Interviews Conducted by Each Interviewer in Each of Eight British Columbia Sawmills

	Number of Interviews by Mill Number								
Interviewer	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Total**
1	12	8	7	10	2	0	12	8	59
2	11	6	9	10	6	10	6	9	67
3	0	0	0	11	9	10	6	7	43
4	12	9	7	10	9	11	0	0	58
Total	35	23	23	41	26	31	24	24	227

Individual interviewing sessions for each participant took up to two hours. Interviews began with a 'warmup' phase of 5-10 minutes to answer questions, explain how confidentiality would be maintained, obtain signed consent and assign a research number which would be the only identification on the data. Each participant was given a card with their identification number and the JCP Research office telephone number. Participants were encouraged to phone if they had questions about the interview. They were cautioned that scores would not be released and that this procedure was not designed as an individual assessment.

The 52 question structured interview took 10-20 minutes, followed by about 10 minutes for the PPVT-R. The administration time for cloze passages varied depending on what level each participant reached. All participants began with the first (grade level 4.5) passage and then were given increasingly more difficult passages until they topped out and/or reached their frustration level (DeSanti, 1986). This is a level so frustrating to the reader that (s)he should not be asked to deal with the material. Instructional level readers can comprehend, but only with assistance. Independent readers are exactly that; they comprehend without assistance.

When a participant could not comprehend the first passage, the interviewer read it aloud, wrote answers for the participant and asked for evaluative comments on the cloze passage. These administrations were not scored.

Following administration of the cloze passages, each interviewer administered the Raven. The session closed with a 'windup' . Each participant was asked what (s)he liked and disliked about the process and what might be done to improve it. As a result of this information some changes were made. None of these changes made earlier data incompatible with later data. For example, one cloze passage was eliminated because it was too close in readability level to the next passage to discriminate efficiently among participants' comprehension levels. We also discovered that employees related well to the Workers' Compensation Board passages, probably because of mills' emphasis on safety; it's probable these passages were familiar. So, one or more WCB passages were administered to nearly all participants who scored at the independent level on Passage 1.

RESULTS

This section presents detailed results of the study and provides interpretive comments. The results presented are from selected interview questions and from the individual measures. They provide an overview of sample characteristics on variables of major interest. Results from standardized measures (PPVT-R and Raven) are interpreted as they relate to responses to background questions from the structured interview. Cloze passage data are interpreted in terms of background interview data as well. Our interest in cloze results prompted us to review those data in several other ways.

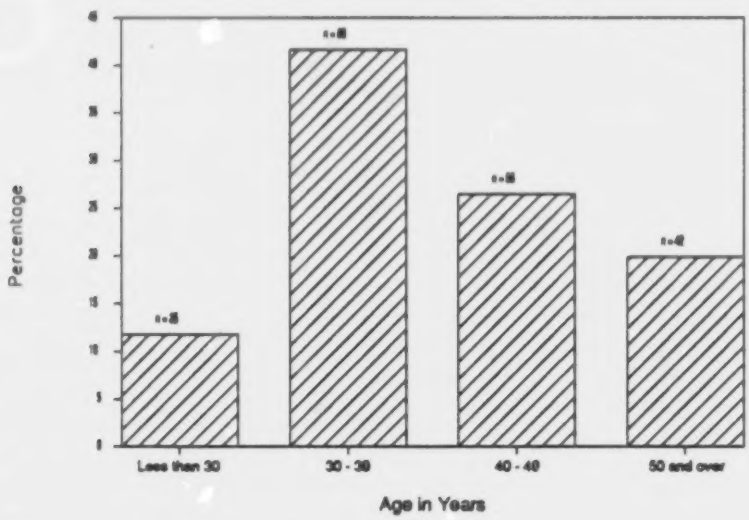
Background Information

Age and Experience.

Participants in the study were almost all male (92.1%) and ranged in age from 19 to 64 years. The age distribution is displayed in Figure 1. The average age was 40 years; the standard deviation was 9.7 years. An average age of 40 years indicates that the sample represents an experienced group of workers with an average 16 years of forest industry experience. Job experience ranged from one to 48 years. One in four had less than 12 years' experience and one in four had more than 22 years' experience. Half (50.7%) of participants indicated they had some form of certification related to their work, such as a grading ticket or a first aid certificate.

Figure 1

Age Distribution of Sawmill Employees

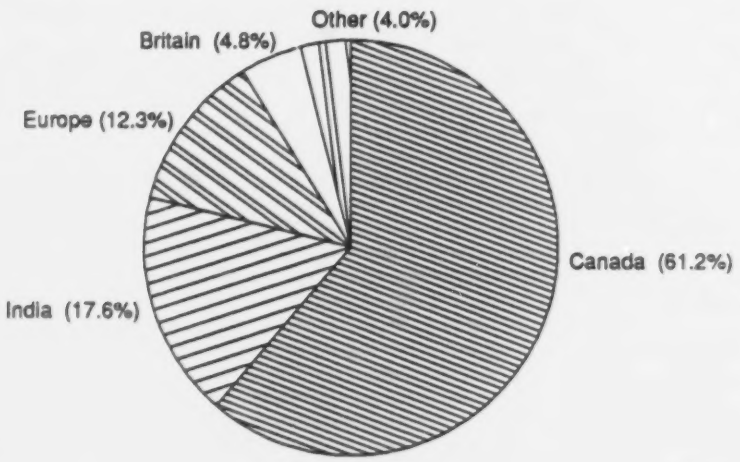


Birthplace and Language Use

About three-fifths (61.2%) of respondents indicated they were born in Canada. The birth country for about one in six (17.6%) was India. The remaining 21.2% gave one of 18 other countries as their place of birth and schooling. This information is displayed graphically by regions in Figure 2. Virtually all participants born outside Canada indicated their childhood language was not English. One-fifth (20.7%) of all respondents indicated they spoke a language other than English at home and about one in six (15.0%) stated that they spoke a language other than English on the job: 'Now and then' = 9.3%; 'Frequently' = 4.4%; 'Most of the time' = 0.9%. One in 10 (9.6%) respondents had taken an English As A Second Language course.

Figure 2

Sawmill Workers' Country of Birth

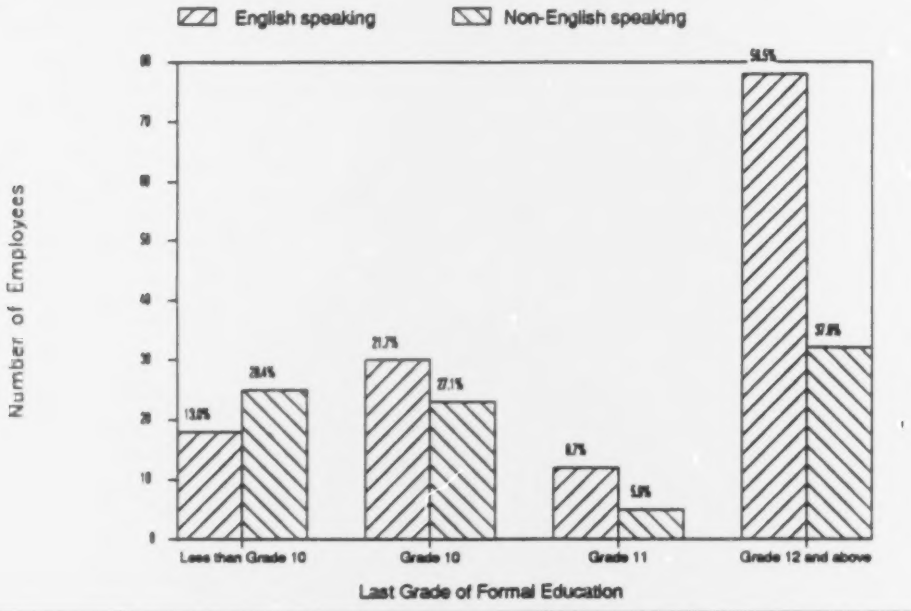


Education.

Figure 3 provides summary data for formal education. Participants were equally split between those completing grade 12 or higher (49.3%) and those completing grade 11 or lower (50.7%). Somewhat more than half (56.5%) of the participants for whom English was the childhood language indicated they had grade 12 or higher compared to 37.6% of those with non-English childhood languages. About one-fifth (19.3%) of the respondents had not completed grade 10 (13.0% with English as the childhood language—29.4% with a non-English childhood language).

Figure 3

Formal Education of Mill Employees



Training Courses and Needs

Three respondents in 10 indicated they had taken one or more training courses in English as a Second Language, Reading Improvement, Writing Skills, Mathematics or some other area. Table 2 displays reponses to this question.

Table 2

Numbers and Percentages of Sawmill Workers Who Have Taken Various Kinds of Training Courses

Training Course	Number* (Percentage**) Having Taken	
English as a Second Language	21	(9.6)
Reading Improvement	26	(11.5)
Writing Skills	23	(10.1)
Mathematics	38	(16.7)
Other	45	(19.8)
None	157	(69.3)

** Total numbers exceed the total sample of 227 because of multiple responses.*
*** Total percentages exceed 100 because of multiple responses.*

Table 3 displays reasons given by respondents who had not taken any training courses. The most common reason was 'No need' given by half (49.4%) of the non-takers. About a third (31.6%) gave 'No time' as their reason for non-participation. Interview notes indicate the main reason for 'No time' was shift work. One in six (17.7%) stated they had no desire or interest in participating. Lack of course availability or individual embarrassment

Table 3

Numbers and Percentages of Sawmill Workers According to Reason Given for Not Taking Training Courses

Reason for Not Taking	Number* (Percentages**) Giving Reason	
No Need	78	(49.4)
No Time	50	(31.6)
No Interest	28	(17.7)
No Advantage	12	(7.6)
Courses Not Available	6	(3.8)
Too Embarrassed	5	(3.2)
Other Reasons	14	(8.9)

** Numbers exceed the total of 157 non-takers because of multiple responses.*
*** The percentage represents the percentage of non-takers giving the reason.*

were rarely given as reasons (3.8% and 3.2% respectively). Respondents were asked if they would like to take courses to improve their reading, writing, mathematics or speaking skills. Responses are shown in Table 4. At least two-thirds of respondents said 'No' in each case. Of the 'Yes' respondents, one third (32.9%) indicated they would like to upgrade their speaking skills and almost as many (30.9%) said they would like to take a course to improve writing skills. Slightly fewer would like to take a reading (28.3%) or mathematics (27.0%) course.

Table 4

Numbers and Percentages of Sawmill Workers Indicating That They Would Like to Take Training Courses in Reading, Writing, Mathematics, or Speaking

Expressed Liking For..	Number* (Percentage**) Choosing	
Reading	43	(28.3)
Writing	47	(30.9)
Mathematics	41	(27.0)
Speaking	50	(32.9)

** The total of numbers exceeds the total of the 152 participants choosing one or more courses because of multiple responses.*

*** The percentage is based on the 152 respondents selecting one or more courses, not the total 227 participants. The total of the percentages exceeds 100 because of multiple responses.*

Table 5 displays the results when participants were asked if they would be more likely to take a training course under certain circumstances. About three-quarters of respondents indicated they would be more likely to take such a course if would help them get a better job (76.2%), if it were needed to keep the present job (74.6%), or if they were given time off to take it (73.6%). One-third (31.8%) would be more likely to take courses offered inside the mill compared to the two-thirds (66.7%) who said they were more likely to take courses offered outside the mill.

Table 5

Numbers and Percentages of Sawmill Workers Indicating Greater Likelihood of Taking Training Courses Given Certain Circumstances

Circumstance	Number* (Percentage**) Choosing	
Time Off To Take Course	148	(73.6)
Course Free, But On Own Time	97	(48.3)
Course Offered Inside Mill	64	(31.8)
Course Offered Outside Mill	134	(66.7)
Course Needed To Keep Job	150	(74.6)
Course Needed To Get Better Job	154	(76.2)

** Total numbers exceed the total sample of 227 because of multiple responses.*

*** Total percentages exceed 100.0 because of multiple responses.*

Table 6 shows the characteristics preferred for course delivery. Four out of five (79.8%) indicated a preference for courses to be offered in a school or college location rather than inside the mill. Two-thirds (66.1%) preferred to take courses independently (i.e. not with co-workers). Respondents showed a clear preference (90.2%) for courses to be taught by outside personnel as opposed to mill staff.

Table 6

Numbers and Percentages* of Employees Preferring Different Mechanisms for Delivery of Training Courses

Preference	Number (Percentage) Choosing	
Take course in mill	43	(23.4*)
Take course in school/college	146	(79.8)
Take course with co-workers	89	(48.6)
Take course independently	121	(66.1)
Take course with mill staff teaching	45	(24.6)
Take course with outside staff teaching	165	(90.2)

** Percentages refer to the 183 respondents indicating they would be more likely to take a training course given one or more of the circumstances shown in Table 6.*

The final question asked 'What keeps you in the present work situation?' Results are shown in Table 7. The two most frequently given reasons were 'Satisfaction' (56.8%) and 'Income' (56.4%). About a quarter of the respondents indicated 'Other reasons' (24.6%), 'Opportunity' (22.9%) or 'Specific training' (22.0%). Approximately one in 10 said 'General education' (10.6%) or 'No oportunity' (9.6%). One in 30 stated that lack of 'Basic language skills' kept them in their present work situation. Apparently, respondents are satisfied in their jobs and with their incomes —183 (80.6%) gave one or both of those reasons for staying in their present work situation.

Table 7

Numbers and Percentages of Employees by Reason Given for Remaining in Present Work Situation

Reason Given	Number* (Percentage**) Choosing	
Satisfaction	129	(56.8)
Income	128	(56.4)
Opportunity	52	(22.9)
Specific Training	50	(22.0)
General Education	24	(10.6)
No opportunity	22	(9.6)
Basic Language Skills (or lack)	8	(3.5)
Other	56	(24.6)

** The total of numbers exceeds the total of 227 because of multiple responses*

*** The total of percentages exceeds 100.0 because of multiple responses*

Standardized Measures

Peabody and Standard Progressive Matrices Results.

Peabody Picture Vocabulary Test - Revised (PPVT-R) scores ranged from 28 to 174 out of a possible 175, with a mean score of 140 and a standard deviation of 32. Scores on Raven's Standard Progressive Matrices ranged from 10 to 59 out of 60 with a mean of 43 and a standard deviation of 11.

Table 8

Standardized Test Results for Sawmill Workers

Test	All Employees
Peabody Picture Vocabulary	
Mean	140
Standard Deviation	32
Raven's Standard Matrices	
Mean	43
Standard Deviation	11

Results on the PPVT-R indicate that the overall receptive vocabulary capabilities of the respondents are similar to those in the population at large.

Raven's results show a sample that is fairly reflective of the greater population in terms of ability to reason by analogy and organize spatial perceptions into related wholes.

Cloze Passage Results

Information from participants' performance on cloze passages is of the greatest interest. These passages represented reading materials which respondents would encounter at work. Results reflect participants' understanding of existing written job materials.

All employees participating in the study were given the entry-level cloze passage (Passage 1.) which was written at a grade 4.5 level (an average student in the fifth month of grade 4 would be capable of reading the passage at an **independent** level according to the DeSanti method of determination). If the employee demonstrated an **independent** reading level on this passage, additional passages were administered until either a **frustration** level score resulted or the final passage (grade 17+) was completed. Participants were not given all passages. For example, if an employee obtained a high score on Passage 1., (s)he was immediately given either Passage 4 (grade 12/13 reading level) or Passage 5 (post-university level). Results are shown in Table 9. Each line should be read and interpreted separately.

Table 9 shows that one employee in six (16.7%) has major difficulty reading material written at the grade 4.5 level (Passage 1.). This group includes the 17 participants who had to have the passage read to them and were not scored. Another two out of five (39.2%) employees are operating at the instructional level with this material. Readers at this level need assistance in order to fully comprehend the material. In total, then, over half (55.9%) of the 227 participating employees are not fully functional with Passage 1.

Table 9

Cloze Passage Results For All Employees

		Employee Comprehension Level			
Passage	**Reading Grade Level**	**Frustration** *Number*	**Instructional** *Number*	**Independent** *Number*	**Total**
1	4-5	38 *	89	100	227
2	5-6	6	13	4	23
3	7	5	25	21	51
4	12-13	6	22	12	40
5	17+	6	56	48	110

** Includes employees whose reading level was below that required by the passage.*

It is clear that the 48 of 110 employees reading at the **independent** level on Passage 5. are unlikely to encounter difficulty with any job-related material. It is reasonable to assume that the 56 participants operating at the **instructional** level on this material are also unlikely to have problems with job-related material — they would almost certainly fall in the **independent** category on Passage 4. This assumption is supported when the scores of employees given both passages are examined.

Background Variables

It is instructive to examine some of the background variables associated with employees scoring at the **frustration** or **instructional** level. Table 10 displays the relevant data. For example, respondents who scored at those two lower levels shared certain characteristics: 63 of 111 (56.8%) had a first language other than English; 26 of 109 (23.9%) most often or frequently spoke a language other than English on the job; and 25 of 106 (22.9%) have fewer than ten years of formal education. Each of these factors — first language, language spoken on the job and education level — may suggest some causal relationships that should be investigated further. It must not be assumed that these factors are accurate predictors of reading ability. Sixteen percent of those reading at the **independent** level did not speak English as children, and 27% of these good readers had no more than a grade 10 education.

Table 10

Background Variables of Employees by Reading Comprehension Level on Cloze Passage 1 (Reading Level 4-5)

	Number (Percentage) of Employees by Level*			
Background Variable	**Frustration/Instructional**		**Independent**	
Childhood language				
English	46	(43.2)	84	(84.0)
Non-English	63	(56.8)	16	(16.0)
Total	111	(100.0)	100	(100.0)
Use of language on job				
English only	83	(76.1)	93	(94.9)
Frequently/most often not English	26	(23.9)	5	(5.1)
Total	109	(100.0)	98	(100.0)
Formal education				
< grade 10	25	(22.9)	10	(10.0)
grade 10	36	(33.0)	17	(17.0)
grade 11	9	(8.3)	6	(6.0)
grade 12+	39	(35.8)	67	(67.0)
Total	109	(100.0)	100	(100.0)

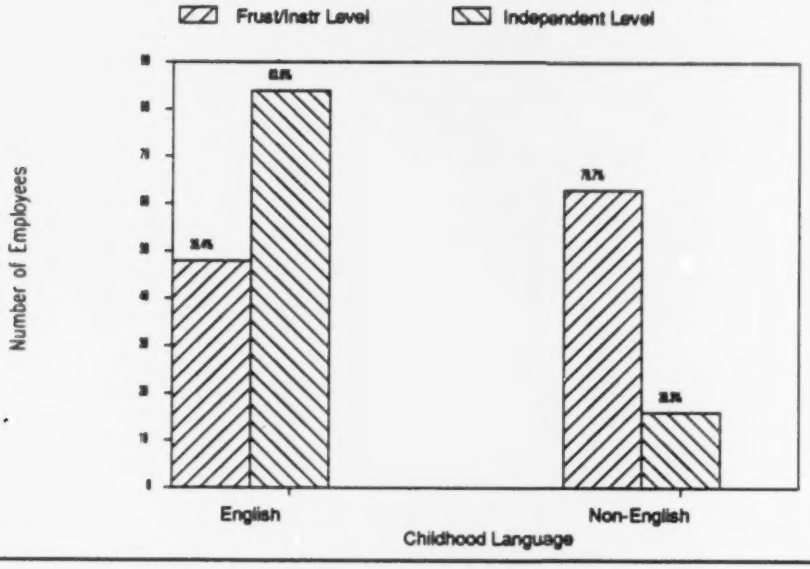
** Percentage refers to the total for the level within that background variable. For example, the 46 employees in the frustration/instructional level with English as the childhood language represent 43.2% of the frustration/instructional group.*

Low reading comprehension is not simply a function of language background and/or formal education. Forty-eight of the 111 respondents (43.2%) in the **frustration/instructional** group spoke English as a first language. Thirty-nine of 109 (39.8%) indicated they had completed at least grade 12. Obviously the low reading comprehension group is quite diverse. It is unlikely that one training program could be effective for the entire group.

As an expansion of Table 10, Figures 4, 5 and 6 provide graphic displays of particular background variables (language, education and age) as they relate to reading comprehension.

Figure 4

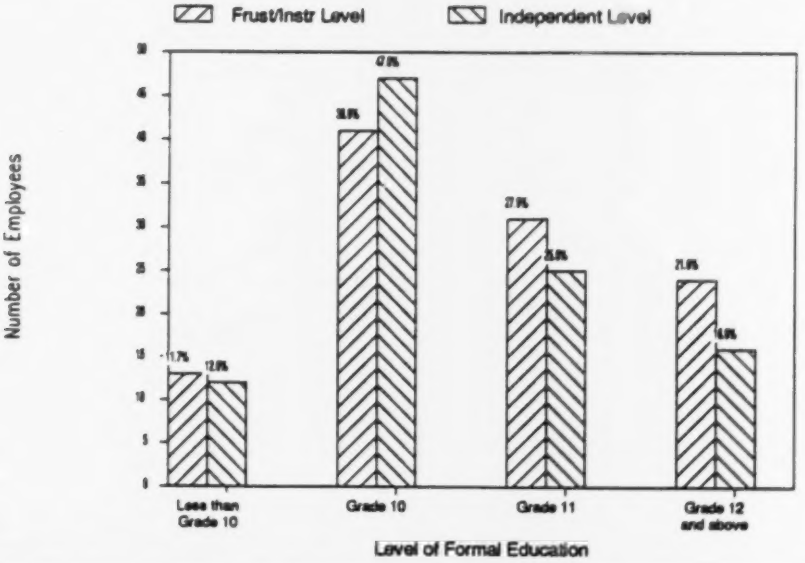
Comprehension Level by Language Background



Note:
The percentage on each column is of the childhood language. For example, the 20.3% on the right-hand 'Non–English' column means that 20.3% of the Non-English group are *independent* readers.

Figure 5

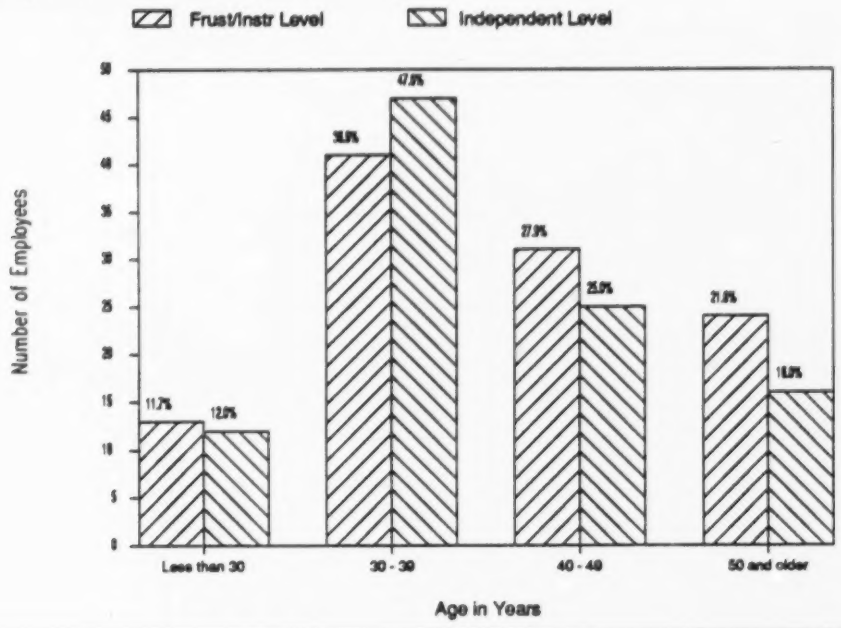
Comprehension Level by Formal Education Level



Note:
The percentage on each column is of the comprehension level. For example, the 10.0% on the right-hand 'less than grade 10' column means that 10.0% of the *independent* readers have less than grade 10.

Figure 6

Comprehension Level by Age Group



Note:
The percentage on each column is of the comprehension level. For example, the 16.0% on the right-hand '50 and older' column means that 16.0% of the *independent* readers are 50 and older.

Associated Variables

A sizeable group (127 or 55.9%) of employees scored at **frustration** and **instructional** levels on Passage 1. Responses from these groups were examined to determine how these employees viewed their own level of reading comprehension. Results are displayed in Table 11. When asked about the difficulty of materials they were required to read, about one-third (30.0%) of the respondents in the **frustration** group and 47.1% in the **instructional** group indicated that the material was 'easy'. Another 60.0% and 49.4% respectively said the material was 'about right'. Two employees (10.0%) in the **frustration** group and three (3.5%) in the **instructional** group said that the material was 'too difficult'. The **instructional** group figures are similar to those of the **independent** level readers (48.5% 'easy', 49.5% 'about right', 2.1% 'too difficult') and would appear to indicate that employees do not perceive themselves as experiencing difficulty with required reading material.

Table 11

Numbers and Percentages* of Employees by Perceived Difficulty of Written Material by Employee Level of Reading Comprehension

	Reading Level on First Cloze Passage			
Perceived Difficulty of Mill Material	**Frustration**	**Instructional**	**Independent**	**Total**
Easy	6 (30.0)	40 (47.1)	47 (48.5)	93
About Right	12 (60.0)	42 (49.4)	48 (49.5)	102
Too difficult	2 (10.0)	3 (3.5)	2 (2.1)	7
Total	20 (100.0)	85 (100.0)	97 (100.0)	202

** Percentage refers to the total for the level within that background variable. For example, the 6 employees in the frustration level who perceive the material to be easy represent 30.0% of the frustration-level group. Percentages may not sum to 100.0 because of rounding.*

There was a degree of inconsistency in employee responses about written materials they encounter on the job. When asked what they do when they 'don't understand written material given to you on the job', about a third (33.9%) of respondents in the lower readings levels indicated that lack of comprehension 'never happens'; 40.4% of the **independent** readers gave the same response. The data are shown in Table 12. Apparently, then, while almost all employees said that material was easy or about right, far less than half stated that they never encountered difficulty in understanding that material.

Table 12

Numbers and Percentages* of Employees by Source of Help When Experiencing Difficulty with Written Material by Employee Level of Reading Comprehension

	Comprehension Level on First Cloze Passage							
Source of Help When Experiencing Difficulty	**Frustration**		**Instructional**		**Independent**		**Total**	
Never need help	2	(2.6) *	34	(44.7)	40	(52.6)	76	(100.0)
Ask fellow worker	8	(17.0)	22	(46.8)	17	(36.2)	47	(100.0)
Ask family	1	(16.7)	2	(33.3)	3	(50.0)	6	(100.0)
Take home to study	1	(16.7)	4	(66.7)	1	(16.7)	6	(100.0)
Do nothing	1	(50.0)	0	(0.0)	1	(50.0)	2	(100.0)
Ask supervisor	15	(16.9)	37	(41.6)	37	(41.6)	89	(100.0)
Ask a friend	5	(45.5)	5	(45.5)	1	(9.1)	11	(100.0)
Other source	0	(0.0)	16	(38.1)	26	(61.9)	42	(100.0)

** Percentage refers to the row total. For example, the 2 employees in the frustration level who indicate that they never experience difficulty represent 2.6% of the 'never need help' group. Percentages may not sum to 100.0 because of rounding.*

When employees encounter difficulty with written material on the job, the main source of clarification is the supervisor (for 75.0% of the **frustration** group, for 43.0% of the **instructional** level employees and for 37.8% of the **independent** level employees). Two-fifths (40.0%) of the **frustration** group indicated they asked fellow workers (compared to 25.9% of the **instructional** group and 17.3% of the **independent** readers). Only small numbers indicated they would ask a family member, take the material home to study, ask a friend or do nothing. None of the **frustration** group, 18.6% of the **instructional** group and 26.5% of the **independent** group responded that they did something else when difficulties arose. It is possible that these 'other' activities involve using a dictionary or other reference materials. If so, the the increasing percentage of 'other' responses as reading comprehension levels increase is easily explained.

There is an apparent contradiction between results outlined in the two previous paragraphs. Almost none (7 or 3.5%) of the respondents indicated that the written materials they encountered on the job were too difficult, yet only about one in three (37.1%) indicated they never had difficulty with those materials. The contradiction might be explained in terms of wording. To answer the materials difficulty question with 'too difficult' might be perceived as admitting to a shortcoming. Individual self-esteem or fear of discovery might preclude such a reponse. The 'source of help' question could be perceived as less threatening as it suggests that having difficulty with written materials is almost a given.

Apparent contradiction aside, it is clear that a significant proportion (about 30.0%) of employees at all reading levels are interested in pursuing courses designed to enhance their reading, writing, mathematics and speaking skills. This information was presented for all employees in Table 4. Results by level of reading comprehension are displaced in Table 13. For the **frustration** group, reading and writing are the preferred choices (40.9% and

Table 13

Numbers and Percentages* of Employees by Type of Training Course and Level of Reading Comprehension

	Level of Reading Comprehension			
Expressed Liking for...	**Frustration**	**Instructional**	**Independent**	**Total**
Reading	9 (20.9)	19 (44.2)	15 (34.9)	43 (100.0)
Writing	8 (17.0)	21 (44.7)	16 (38.3)	45 (100.0)
Mathematics	4 (9.8)	22 (53.7)	15 (36.6)	41 (100.0)
Speaking	6 (12.0)	23 (46.0)	21 (42.0)	50 (100.0)

** Percentage next to each number of employees refers to the row total. For example, the 9 employees in the frustration level who expressed a liking for a reading course represent 20.9% of the total reading group. Percentages may not sum to 100.0 because of rounding.*

36.4% respectively). The **instructional** group show a preference for mathematics courses (53.7%). The **independent** group show the strongest interest (34.4%) in improving their speaking skills. These differences in preference may reflect actual differences in perceived needs or other considerations such as seeking job promotion or personal growth. Whatever the motivation, it should be clear that different courses are likely to have different mixes of participants. Again, a common mechanism of course delivery is likely inappropriate. Participants were asked if oral instructions given them on the job could be heard and/or understood. Eighty-five percept (170) of the 204 employees who answered this question said they received verbal instructions on the job. A majority (83.3%) of those employees said the oral instructions could be heard. Of those who said they could not hear such instructions, 73.2% gave mill noise as the reason. Almost all (96.2%) said instructions were easy to understand when they could be heard.

The significance of written and oral communication in the mill workplace warrants comment. One of the questions dealt with the relative frequency with which employees read, listen, write and speak on the job. Respondents were asked to rank these activities from 1 (most frequent) to 4 (least frequent). Listening ranked first, followed by speaking, reading and writing. Respondents are clearly much more involved in oral than written communication on the job. This finding raises questions about which modes of communication should be used and emphasized in job training. The assumption that improved reading skills will make a positive difference in job performance appears questionable.

SUMMARY OF RESULTS, CONCLUSIONS AND IMPLICATIONS

Forty percent of the 150 participants given Passages 4. and 5. scored high enough to be labelled **independent** readers on job-related material at or above the grade 12 level (See Table 9).

Scores from Passage 1. indicate that 38 (16.7%) of the 227 cannot deal with material written at the grade 4.5 level, and that 89 (39.2%) need help with it. In total, then, 55.9% of the 227 participating employees are not fully functional with Passage 1. (See Table 9), scoring at either the **frustration** or **instructional** level (DeSanti, 1986). More than half of the individuals in this group reported their childhood language was not English and that they did not speak English at home. Almost a quarter stated they most often or frequently spoke a language other than English on the job. Nine out of ten of the employees demonstrating the lowest comprehension scores have a non-English language background. Forty percent of this group speak another language on the job (28.6% 'frequently' or 'most of the time'). These factors suggest a causal relationship with language background and low scores.

It must be noted that low reading comprehension is not simply a function of language background and/or limited formal education. Nearly half of respondents who could not read Passage 1 at the independent level spoke English as children. One in five had completed at least grade 12. It seems that programs designed to improve reading comprehension levels of individuals with such varied backgrounds should be designed carefully, conducted individually or in small groups, and may need to be long-term efforts.

The most common reason for not taking training courses was 'no need', given by nearly half of participants. About a third gave 'no time' as a reason; the principal reason given for having 'no time' was shift work. One in six stated they had no desire or interest in participating. Lack of course availability or individual embarrassment were given infrequently as reasons.

When respondents were asked if they would like to take courses to upgrade reading, writing, mathematics or speaking skills, two-thirds of those answering said 'No' in each case. But when asked to specify the conditions under which they would take courses, three-quarters of respondents indicated they would be more likely to take a course if: it would help get a better job; were needed to keep the present job; they were given time off to take it; if it were offered outside and mill; and if non-mill personnel were teaching.
Participants were asked 'What keeps you in the present work situation?' The two reasons given most frequently were "Satisfaction' and 'Income'. One in thirty stated that lack of 'Basic language skills' kept them in their present work situation.

Results of the study permit a number of conclusions:

- A significant number of mill employees have reading comprehension levels below what is needed to understand much of the written material they face. At the same time, these employees indicate the material they deal with is 'easy' or 'about right' in terms of reading level. About two-thirds of them, however, seek assistance when they have trouble coping with this 'easy' or 'about right' material.

- It is obvious that the readability level of job materials should be addressed. DeSanti's categories suggest that materials should be written at or below an employee's instructional level. Where possible, written materials should be revised to fit readers' comprehension levels.

- We do not know if there is any correspondence between reading comprehension level and job performance. Employees report they cope, through seeking assistance from a supervisor or fellow worker and through hand signing.

- Most workers reported they do not read on the job, but receive instructions verbally. It is not clear how many would read instructions if they could, or if instructions and manuals were more readable. It is possible that training through modes other than reading could be a more expedient way to enhance job performance. We have seen several in practice, such as physical demonstration combined with verbal instruction, hand signing and videotapes. We probably should know more about how well these modes work, and in what combination.
- There does appear to be cause for concern regarding reading comprehension levels of many mill workers. The results of this exploratory study show that low reading comprehension in the mill context is not exclusively the result of language background, education or age.

- A significant proportion of employees at all reading levels are interested in taking courses designed to improve their reading, writing, mathematics and speaking skills. There are differences in preference between groups. For the frustration group, reading and writing are the preferred choices. The instructional group show preference for mathematics courses and the independent group express the strongest interest in improving their speaking skills.

- The research literature provides ample evidence that crash programs in general literacy for adults in an educational context have not worked (Sticht, 1986, 1987). To improve the reading levels of employees, it would seem necessary to design training programs around work related materials. General literacy gains from work related reading programs are two to three times greater than those made in general reading improvement courses. It seems mill employees must be offered programs which consider their varied backgrounds and individual needs on the job. We do make a strong difference here between education (general literacy) and training (reading improvement on the job).

To end this report on our exploratory study, we would like to emphasize several points.

First, this is exploratory research on 227 sawmill employees in British Columbia, designed as one of four continuing studies. Results should be interpreted with that in mind.

Second, this is not a simple group. Participants represent an extremely interesting group of verbally articulate employees with diverse language backgrounds, educations levels and reading comprehension skills across the age range. If improving reading comprehension is the goal, it is clear that a unilateral approach would probably not work, and that any method should be geared to job materials.

Third, we are not sure that improving reading skills is the answer to enhancing job performance. If job performance is the issue, we need to sort out the way this varied group learns best, through whatever mode or combination of modes, whether reading, video, physical demonstration, verbal instruction, and/or hand signing. This preliminary study was designed to raise questions, and it has. Answers to these questions are important for the industry to be cost and learning effective with whatever programs are put in place.

REFERENCES

Brown, Ron, 1991. Literacy and Power: Technological Change and Skills in the B.C. Forest Industry. *Literacy 2000 Conference Summary*. Ministry of Advanced Training and Technololgy; Multiculturalism and Citizenship, Canada; National Literacy Secretariat; and Douglas College, Vancouver, B.C. pp. 140-142.

DeSanti, R.J., 1986. *The DeSanti Cloze Reading Inventory*. Boston: Allyn & Bacon.

Dunn, L.M. & Dunn, L.M., 1981. *Peabody Picture Vocabulary Test, Revised*. Circle Pines, MN: American Guidance Service.

Fagan, W.T., 1990. Literacy for Participation in the Economy. Edmonton, Alberta: Faculty of Education. Paper presented at the 23rd Annual Convention of the Canadian Council of Teachers of English, Halifax, Nova Scotia, May 8-12.

Goetz, E., 1991. Reading/Writing on the Job: British Columbia. *Literacy 2000 Conference Summary*. Ministry of Advanced Training and Technology; Multiculturalism and Citizenship, Canada; National Literacy Secretariat; and Douglas College, Vancouver, B.C. pp. 137-139.

Raven, J.C., Court, J.H. & Raven, J., 1977. *Standard Progressive Matrices*. London: H.K. Lewis & Co, Ltd.

Sattler, J.M., 1988. *Assessment of Children*, 3rd Ed. San Diego: J.M. Sattler.

Sticht, T., 1986. Job Skills and Basic Skills: Training 'Mid-level Literates' for Work with New Technologies. Paper presented at the Work in America Institute Seminar on Training Policy, New York.

Sticht, T.G., Armstrong, W.G., Hickey, D.T. & Caylor, J.S., 1987. Cast-off Youth: Policy and Training Methods from the Military Experience. New York: Praeger.

APPENDIX A: INTRODUCTORY MATERIALS

COUNCIL OF FOREST INDUSTRIES
OF BRITISH COLUMBIA
1200 - 555 Burrard St.
Vancouver, B. C.
V7X 1S7

- and -

IWA-CANADA
Regional Council #1
500 - 1285 West Pender St.
Vancouver, B. C.
V6E 4B2

16 February 1990

Dear Sirs:

Re: Job Communication Skills Study of Sawmill Operations of B.C.

Under the auspices of the Secretary of State of Canada, IWA-Canada and forest industry representatives have agreed to participate in a study of the communication skills among sawmill workers in British Columbia. The study conducted in ten randomly selected mills is aimed at determining how well the written materials and information used in mill operations are well understood and leave the worker with the necessary operational and safety and health information needed to carry out their jobs effectively and with the highest degree of personal safety.

A joint IWA-Canada and industry steering committee have engaged a team of consultants to carry out the study and prepare reports that will be focussed at mill level as well as across the range of the ten mills selected. Results will be completely anonymous and confidential, but will provide an overview of the levels comprehension and the degree of readability of the material used.

This letter is to advise you that your operation has been selected in the process. In an effort to obtain the best quality of information and an accurate representation of our industry's workplace, we ask that you, along with the local union concerned, consider this request to join in the research project and agree to take part in the selected group of ten mills.

Phillip Legg of IWA-Canada or Ross Stryvoke of Forest Industrial Relations Ltd. will be contacting you by phone in the next few days to discuss this further.

A pilot project has been completed at MacMillan Bloedel's Canadian White Pine Division and an overview of the process which was used there is attached to explain some of the details.

Yours very truly,

T.M. Apsey
President and
Chief Executive Officer
Council of Forest Industries

Jack Munro
President
IWA-Canada

J.C.P. RESEARCH

SUITE 161
1020 MAINLAND STREET
VANCOUVER, B.C. V6B 2T4

PHONE: (604) 683-0556
683-9396

THIS PROJECT WAS DESIGNED BY JCP RESEARCH AND IS SPONSORED BY COFI AND IWA CANADA. THE SECRETARY OF STATE IS FUNDING IT. THE PURPOSE OF THE SURVEY IS TO SEE HOW EFFECTIVE OUR WRITTEN MATERIALS ARE IN B.C. MILLS.

WE HAVE DRAWN ___ MILL NAMES OUT OF A HAT. ALSO FROM EACH MILL, EMPLOYEE NAMES WERE DRAWN OUT OF A HAT. EACH INTERVIEW LASTS TWO HOURS. THE PROCESS IS CONFIDENTIAL; NO RESULTS FOR INDIVIDUALS ARE REPORTED. JCP IS AVAILABLE TO ANSWER YOUR QUESTIONS BEFORE THE INTERVIEWS AND THE PROJECT.

AFTER THE INTERVIEW, WE WOULD LIKE YOU TO TELL US HOW WE CAN MAKE THE PROCESS BETTER. THIS IS A PILOT PROJECT AND HAS NOT BEEN DONE BEFORE.

THE FOLLOWING IS A BRIEF OUTLINE OF THE INTERVIEW:

1) EXPLANATION OF THE SURVEY AND CONFIDENTIALITY (CONSENT FORM)

2) 15 MINUTE TALKING INTERVIEW

3) PICTURE - WORD EXERCISE --- NO READING OR WRITING

4) FILL IN THE BLANKS EXERCISE FROM FOREST INDUSTRY MATERIALS --- NO RIGHT ANSWERS

5) PUZZLE EXERCISES EVERYBODY LIKES

6) YOUR OPINION ABOUT THE ABOVE.

THANK YOU.

APPENDIX B: BEFORE AND AFTER REACTIONS OF PARTICIPANTS

Responses to the two questions were coded with respect to the extent they appeared to be positive (+), negative (-) or neutral (N). Those codes appear in parentheses next to each statement.

1. What were your thoughts and feelings before the interview?
   Not bad. (N)
   A little nervous. (-)
   No preconceptions. (N)
   Unsure and untrusting. (-)
   Happy to be one of the participants. (+)
   Wondering why. (N)
   Didn't give it much thought. (N)
   I fully understood the purpose. (+)
   No noticeable feelings. (N)
   Did not want to take the test. (-)
   Wasn't such an intimidating event. (N)
   Interesting. (+)
   Idea a good one. (+)
   I didn't want to come. . .might affect my job. (-)
   Hadn't received much information. (N)
   Why bother? — then, why not? (N)
   Did not have a definite idea. (N)
   Apprehension. (-)
   Wasn't quite sure what to expect. (-)
   Unsure. (-)

TOTALS: 5 Positive, 9 Neutral, 6 Negative

2. What were your reactions after your interview?
   Is OK. (+)
   Just a kind of aptitude test. (N)
   They were good. (+)
   A bit of fun and kind of interesting. (+)
   It was fun. (+)
   Fully enjoyed. (+)
   I was surprised at how simple the test was. (+)
   It was fun and I felt good after. (+)
   Challenging. (+)
   Very interesting. (+)
   Very interesting. (+)
   Interesting and challenging. (+)
   No problem. (+)
   Pleased that I was asked. (+)
   Comfortable. (+)
   I would do it again, interesting. (+)
   Worthwhile, interesting, challenging. (+)
   Interesting. (+)
   Interesting. (+)
   Good! Glad I could help you out. (+)

TOTAL: 19 Positive, 1 Neutral, 0 Negative.

APPENDIX C: CLOZE PASSAGES

#_____1_____ Date_____

THE FOREST INDUSTRY

The forest industry is of great value to British Columbia. In one year, B.C. produced over 60 per cent of Canada's sawn lumber. It _____1 _____ most of the plywood, _____2 _____ , and 25 per cent _____3 _____ the pulp. Most of _____4_____ softwood lumber is sold _____5 _____ Canada. The biggest market _____6 _____ in the United States. _____7 _____ markets are in Europe _____8 _____ Japan. Half the trees _____9 _____ down each year end _____10 _____ as lumber. The other _____11 _____ is used to make _____12 _____ and paper. Most of _____13 _____ logs used to make _____14 _____ and plywood are softwoods. _____15 _____ 5 per cent are _____16 _____. On the B.C. coast, _____17 _____ are floated to the _____ 18_____. In the Interior, they _____19 _____ moved by trucks and _____20 _____. Many men and women work in the forests and the mills in British Columbia.

#2_____ Date_____

WOOD PULP

Wood pulp is made from wood by a process of dissolving and chemical softening. _____1_____ pulp is the raw _____2_____ for paper and varnishes _____3_____ many other products. Some _____4_____fibres are also made _____5_____ wood pulp. The most _____6_____kinds of trees used _____7_____ make wood pulp are _____8_____ , fir, spruce, and beech. _____9_____ takes about three cubic _____10_____ of wood to produce _____11_____ thousand lbs. of pulp. _____12_____ ten million tons of _____13_____ are produced each year.

_____14_____ process of turning timber _____15_____ into pulp is as follows. _____16_____ the log is stripped _____17_____ bark and cleaned. Next, _____18_____ is chopped up into _____19_____ pieces and boiled in _____20_____ hot solution of caustic _____21_____ or other sodium compound. _____22_____process causes the lignin_____23_____ holds the wood fibres _____24_____ to dissolve. The result _____25_____ _a soft pulp which consists of cellulose. This raw pulp is further reduced, washed, bleached and again carefully cleaned.

#3_____ Date_____

LOW BACK

The low back is subject to greater mechanical stress than any other part of the body and is prone to injury. It is important to _____1_____ what situations cause excessive _____2_____ and how to use _____3_____ body mechanics to reduce _____4_____ chances of injury.

A _____5_____ of low back problems _____6_____ caused by simple strains _____7_____ can heal within six _____8_____ eight weeks with appropriate _____9_____. Fear and misunderstanding are _____10_____ two main factors that _____11_____ delay recovery. Understanding how _____12_____ back works also helps _____13_____ to look after it _____14_____.

THE SPINE. The most _____15_____ part of the back _____16_____ the spine. It is _____17_____ of twenty-four blocks called _____18_____ which are stacked on _____19_____ of one another and _____20_____ separated by shock-absorbing _____21_____ .

FACET JOINTS. Facet joints _____22_____ two adjacent vertebrae and _____23_____ the vertebrae to move _____24_____ each other. They are _____25_____ to strain and wear and tear like any other joint. If strained, they often cause low back and buttock pain, but usually heal within six weeks to eight weeks.

4 _____ Date_____

WCB REVIEWS

When a negative decision has been rendered by the WCB there is an opportunity to review the ruling with the reporting manager of the adjudicator. This internal process is _____1 _____ and can usually be _____2 _____ within a few weeks _____3 _____ the decision. It is _____4 _____ important to note that _____5 _____ internal management review does _____6 _____ extend the ninety day _____7 _____ limit from the WCB _____8 _____ to an appeal to _____9 _____ Review Board. The Review _____10 _____ may only consider appeals _____11 _____ a decision made by _____12 _____ officer of the Board _____13 _____ respect to a worker's ____14 _____. The Review Board does ____15 _____ consider matters of administration, _____16 _____ penalties or other issues _____17 _____ an employer. These are ____18 _____ by a request for _____19 _____ with the Board's administration _____20 _____ may be appealed to _____21 _____ Commissioners. The appellant must _____22 _____ the Review Board in _____23 _____ within ninety days that _____24 _____ intends to appeal a _____25_____ of the WCB. (There are appropriate forms available at the Review Board.)

5 _____ Date_____

WHMIS: What does it mean?

The Workplace Hazardous Materials Information System -- WHMIS -- is a major response to Canadian Workers' right to know more about safety and health standards of materials used in the workplace. WHMIS was developed over _____1 _____ years through the collective _____2 _____ of labour, industry, federal _____3 _____ provincial governments and regulatory _____4 _____. The co-operative effort began _____5 _____ the early 1980's. A _____6 _____ for a nationally consistent _____7 _____ system was made to _____8 _____ Canadian Association of Administrators _____9 _____ Labour Legislation (CAALL) by _____10 _____ regulatory agencies in occupational _____11_____ and health. From the _____12_____, the Workers' Compensation Board __13_____ B.C. has been active ____14_____ formulating the system. The _____15_____ has been represented throughout _____16_____ the Director of Research _____17_____Standards, OS&H Division. The _____18_____ Hygiene Officer has been _____19_____ in the preparation of _____20_____ WMIS Core Material, the _____21_____ reference manual on WHMIS. _____22_____ 1982, a federal / provincial task _____23_____completed its report on _____24_____ feasibility of labelling hazardous _____25_____ in the workplace. In the words of the Occupational Hygiene Officer, "The consultative process, with the aim of establishing a national system, worked well."

APPENDIX D: RATIONALE FOR USING CLOZE PASSAGES

Report to: The Director, Job Communication Skills Project

From: F. and B.A. Bowers Date April 29, 1989

Subject: Testing Adult Comprehension in the Workplace

Recommendations

We recommend a cloze test constructed from actual instructional, informational and safety documentation used or likely to be used by personnel from workers to management. The cloze tests themselves may be checked for readability by standard formulae and, if necessary, other comprehension tests may be administered to correlate the comprehension findings from cloze with standard norms. However, for the purposes of finding ranges of literacy and of defining an operational standard, a cloze test is all that is necessary.

An instrument of the cloze kind has several advantages:

it is an interactive measurement of information exchange between document and reader;

as such, it is as much a measurement of the readability of the given document as a test of the reader's ability to comprehend; it is neutral and less of a threat to the reader than most comprehension tests are;

it is context-sensitive, in that it relates concrete, real and relevant content with readers who have knowledge and experience of the situation, purpose and effect of the content;

it is a mid-level, pragmatic test, neither elementary nor over-sophisticated;

it is easy to construct and cheap to administer and assess;

it can be checked against known readability and standardized reading tests.

Discussion

Introduction

The literature makes a strong distinction between the nature of child and adult literacy, with consequences for testing. Recent and current opinion reacts sharply against the domination of literacy testing and remediation by considerations of childhood development and needs, and has turned towards the special concerns of the adult. In particular, the following observations prevail in discussion of adult literacy:

1. Early reading development falls within the language acquisition period and at a time of sparse knowledge of the real

world; in contrast, the adult learning of reading occurs after the general language acquisition period and at a time of richer real-world experience and knowledge.

2. Children are regarded as learning to read for the skill itself, and are tested accordingly, whereas adults learn to read for particular information and in order to do something. An adult literacy test, therefore, should ideally be of the performance (uptake in action) kind.

3. The methods of testing reading ability used for children are not appropriate for adults, for several reasons: school-tests are very much limited to testing decoding and literal comprehension, omitting inference, action, choice, and flexibility of strategy; they relate to a level of basic literacy, rather than to a level of career literacy; they are not performance tests. Whereas rather mechanical tests of word-recognition and comprehension might be appropriate at the child-learner level, they are of dubious value for the adult.

4. The measurement of child literacy is in terms of age and school grade; these terms are irrelevant and affectively counterproductive when applied to adults. A coarser division into such bands as dealing, barely coping, and evading, is more practical for adults in a given work situation.

5. The majority of reading/literacy tests are structured in terms of teaching objectives (often hierarchically arranged in relation to a Bloom-type taxonomy) which presuppose some linear order of presentation in an ideal scheme. Adult needs are more pragmatic, functional and task-oriented.

These general observations lead us to suggest that the adult, particularly in a work situation, is not an appropriate passive testee, but is an active participant in any evaluation process, and should be treated as such.

Models of Comprehension Test

There are three major models of test:

The bottom-up model, which tests phonic-graphemic sub-skills, decoding, word recognition and literal comprehension; this model assumes a hierarchic structure of language and a linear learning path. It apparently does no great harm when applied to early learners, but has no relevance to all but pre-literate adults, and certainly does not suggest itself as a useful starting point in testing workplace comprehension.

The top-down model, which tests cognitive strategies, judgment, critical thinking and study-skills; this model addresses readers of known high competence, and does not seem appropriate for Job Communication purposes.

The interactive model, which regards both the text and the reader as variables and which is not restricted to any particular level of reading competence or development; this model is particularly suitable to testing in a known environment and bounded semantic field, and is, therefore, the best candidate for a test leading to the definition of operational literacy and effective documentation.

Types of comprehension test

There are two major types of comprehension test: performance task tests and verbal tests. The characteristics of each are:

1. Performance Task Tests

In these the testee reads a passage of instruction and performs the task presented. Evaluation is made in terms of the performance of the task.

Advantages: only in quite narrow and predetermined situations, where they can evaluate a wide range of competences in relation to a confined semantic field.

Disadvantages: expensive and highly constrained (test must be in real work-place in real time); affectively unpleasant for testee; very restricted range of subject-matter. To reduce these disadvantages, representative tasks may be constructed, but these may reduce the pragmatic validity of the test, because the relation between a "representative" task, convenient for testing, and the real task in an actual work-situation is indeterminate.

2. Verbal tests

These are of two kinds: wh-questions (i.e. a comprehension test of the familiar sort) and cloze word-restitution.

Advantages: both kinds are cheap; both can be constructed for particular semantic fields; both are concerned with comprehension rather than simple recognition. Cloze tests measure syntactic and pragmatic knowledge as well as semantic, whereas wh-question tests only semantic knowledge.

Disadvantages: Wh-questions tests measure mainly at the decoding and literal comprehension level, and are thus more useful at the basic literacy level than at the level of career literacy. They also test discrete items and (apparent) skills rather than holistic response. Cloze tests have no apparent disadvantages for the kind of testing required in the Project.

Of the two verbal procedures, cloze-testing is the more versatile. Intrinsically, it is a measure of text-readability rather than of reader-literacy, but as there can be no text without a reader and vice versa, cloze is commonly used in reading tests.

Bormuth (1973) suggests that a cloze criterion evaluation can be made by using cloze in relation to two objective effects--gain of information and reading-time--and two subjective ratings of response--text-difficulty and text-friendliness. In this procedure, restitution scores are plotted against scores from Wh-questions, reading-times, and subjective ratings of difficulty and willingness to continuue reading on scales of 1 to 7.

Bormuth's conclusion is one we strongly agree with, that "literacy is determined by reading ability and readability" and that literacy tests should, therefore, follow "a model that permits us to jointly identify a criterion of literacy and readability." (1973: 65)

We suggest that the kind of test appropriate for adults in the workplace is of the interactive kind, rather than of the purely "top-down" (cognitive, purposive, attitudinal) or "bottom-up" (sub-skills of decoding and literal comprehension). A test such as cloze, accompanied by attitudinal questions of the kind suggested in Bormuth, would, we think be the most suitable. The work done in Britain (e.g. Kohl, Charnley, Kedney) in adult and industrial literacy supports this view.

Off-the-shelf tests

Several standardized tests are on the market and we are still investigating the availability and usefulness of each as well as searching for others. However, their context-free and generalized nature does not make them appropriate as the primary test, though they may be useful for comparisons with a larger population.

Levels of literacy

The Project wishes to identify an operational standard of literacy, so the identification of levels of literacy is an important aim of the workplace comprehension testing to be made.

For many years literacy has been graded in terms of age and school grade. Such a measure has no relevance for adults, as Charnley and others point out. Researchers into Adult Literacy generally agree that no more than four bands of competence can be defined, and three are common. They are usually expressed in terms of competences.

Powell has three bands:

preliteracy (knowledge of sub-skills, not automatic)
basic literacy (automatic, beyond relapse but limited in scope)
career literacy (basic plus advanced skills in work area; these are multidimensional skills and are not generalisable acroos occupations)

Kohl has similar bands;

beginning (knows print and basic sub-skills but may panic or evade)
not bad (can read newspapers, fill in simple forms; s/he copes reasonably)
with ease (manages all general and occupational reading; s/he deals)

These bands are similar to those of the Adult Performance Levels:

APL 1 difficulties with reading general material
APL 2 functional in most material
APL 3 proficient in all material

Finally, Harrison arrives at three bands in terms of the reader's instructional needs:

frustrated (needs instruction in basic reading skills)
instructional (needs instruction in some areas)
independent (needs no instruction)

Our conclusion is that three bands of the kind above are sufficient for the characterisation of workplace comprehension skills at any one functional level and will permit the definition of operational literacy and readability.

Conclusions

We conclude that the most effective test is likely to be of the cloze kind using actual workplace documentation. Certainly, we think it is the kind to be tried initially. It may have to be refined by being combined with other tests of the kind suggested in Bormuth (1973), but the cloze test itself is a very practical starting point, particularly as the project is interested in communication as a two-way process, and not merely in worker literacy.

What we need in order to implement such a test is instructional etc. material from the workplaces to be examined. The "high-level" material that we have obtained from COFI on WHMIS is not of the appropriate kind to test in a mill, so we need more basic instructional material on which to construct tests. Once we have such material we can set about constructing an appropriate instrument.

Literacy, Reading, and Readability Tests--Select Bibliography

Adult Performance Level Project (1975) Adult Functional Competency; a Summary. Austin, Texas: U. of Texas, Division of Extension.

Adult Performance Level Project (1975) A Report to the Office of Education Dissemination Review Panel. Austin: Texas, U. of Texas, Division of Extension.

Ahmann, J.S. (1975) "An Exploration of Survival Levels of Achievement by means of Assessment Techniques," in Nielson and Hjelm.

Anderson, B.L. et al. (1980) Guidelines for Selecting Basic Skills and Life Skills Tests. Portland, OR: Northwest Regional Educational Laboratory.

Barrow, W. "What Adults Read--Implications for Literacy," in Moyle, 33-6.

Bormuth, John R. (1966) "Readability: a New Approach," RRQ 1, 79-132.

--------- (1967) "New Developments in Readability Research," Elementary English, 44.

--------- (1973) "Reading Literacy: Its Definition and Assessment,"RRQ 9/1, 7-66.

Bowers, F. and Nacke, P.L. (1971-2) "Cloze, Transformational Theory and Redundancy," Journal of Reading Behaviour 4/1, 20-33.

Bowers, John (1969) "Functional Literacy: definition and evaluation," in Wood.

Bullock, (1975) A Language for Life, HMSO (see Chapter 2, fn 3 for reading ages, and Chapter 19, sections 9 and 12 on adult literacy.)

Charnley, A.H. and Jones, H.A. (1979) The Concept of Success in Adult Literacy. Cambridge: Huntingdon Publishers.

Dale, E. and Chall, J.S. (1948) "A Formula for Predicting Readability," Educational Research Bulletin, 11 and 37.

Davison, A. and Kantor, R.N. (1982) "On the failure of readability formulas to define readable texts: a case study from adaptions," RRQ 2, 187-209.

Fisher, D.L. (1981) "Functional Literacy Tests: a model of question answering and an analysis of errors,"RRQ 3, 418-48.

Flesch, R.R. (1948) "A New Readbility Yardstick," 32 Journal of Applied Psychology 221.

--------- (1949) The Art of Readable Writing, NY.

Gadway, C. and Wilson, H.A. (1975) Functional Literacy: Basic Reading Performance. Denver: National Assessment of Educational Process.

Gilliland, John (1976) Readability. London: Hodder and Stoughton.

Goody, J. (ed) (1968) Literacy in Traditional Societies. Cambridge: CUP.

Gray, W.S. and Leary, B. (1935) What Makes a Book Readable? Chicago: University of Chicago Press.

Gunning, R. (1968) "The Fog Index After Twenty Years," Journal of Business Communication, 6/3.

Harris L. and Associates Inc. (1971) The 1971 Reading Difficulty Index: a study of reading ability for the National Reading Council. National Reading Center Foundation, Washington.

Harrison, D. (1984) Assessing English Skills: Reading. Ministry of Education, Victoria, B.C.

Johnston, P.H. (1983) Reading Comprehension Assessment: A Cognitive Basis. Newark: I.R.A.

Kedney, R.J. "Adult Literacy: Needs, Aims and Objectives," in Moyle, 17-31.

Kohl, H. (1974) Reading, How to. Penguin: London.

Klare, G.R. (1974) "Assessing Readability," RRQ 1, 62.

Klare, G.R. (1976) "A Second Look at the Validity of Readability Formulas," Journal of Reading Behaviour, 8/2, 129.

Laubach, R.S. and Koschnick, K. Using Readability: Formulas for Easy Adult Materials. Syracuse, NY: New Readers Press.

Mace, J. (1979) Working with Words. Writers' and Readers' Publishing Co-operative: London.

MacFarlane, T. "Dangerous Rudiments: the use of real-world reading tests in adult literacy programs," in Moyle, 67-72.

Moyle, D. (1978) Perspectives on Adult Literacy. UKRA Occasional Publication: London.

---------- (1978) "Assessment and Diagnosis," in Moyle, 53-65.

Murphy, R.T (1975) "Assessment of Adult Reading Competence," in Nielson and Hjelm.

---------- (1973) Adult Functional Reading Study. (PR 73-48) Princeton, NJ: Educational Testing Service.

---------- (1975) Adult Functional Reading Study. (PR 75-2) Princeton, NJ: Educational Testing Service.

Nafziger, D. et al. (1975) Test of Functional Adult Literacy: an Evaluation of Currently Available Instruments. Portland OR: Northwest Regional Educational Laboratory.

Nielson, D.M. and H.F. Hjelm (eds). (1975) Reading and Career Education. Newark: IRA.

Northcutt, N. (1975) Functional Literacy for Adults: a status report of the Adult Performance Level Study. Austin, Texas.

Pikilski, J.J. and Shanahan, T. (1982) Approaches to the Informal Evaluation of Reading. Newark: IRA.

Powell, W.R. (1978) "Levels of Literacy," in Moyle, 3-8.

Redish, J.C. (1979) "Readability," in Drafting Documents in Plain Language, NY, PLI.

Schofield, R.S. (1968) "The measurement of literacy in pre-industrial England," in Goody.

Sticht, T.G. et al. (1971) "Project REALISTIC: evaluation and modification of REAding, LIStening, and arithmeTIC requirements in military occupations having civilian counterparts," HumRRO Professional Paper 19-71, September, 1971.

---------- (1971) "Determination of literacy skill requirements in four military occupational specialties," HumRRO Technical Report 71-23, December, 1971.

---------- (1972) "Determination of Adult Functional Literacy Skill Levels," RRQ 7/3, 424-65.

---------- (1975) Reading for Working, Human Resources Research Organisation, Alexandria Va.

Taylor, W.L. (1953) "Cloze Procedure: A New Tool for Measuring Readability," Journalism Quarterly, 30, 415.

Waters, Louise B. (1982) Occupational Reading. Belmont, CA: Wadsworth.

Wood, F. (ed) (1969) The Evaluation of Functional Literacy Projects. UNESCO Workshop, University of London Institute of Education.

Standardized Tests of Adult Reading Comprehension

Guidance Centre, Faculty of Education, U. of Toronto (1974) Adult Basic Learning Examination. Toronto. (Available from 371 Bloor Street West, Toronto, ON M5S 2R7).

---------- (1977) Industrial Reading Test. Toronto. (As above).

B.C. Ministry of Education: Continuing Education Division. (1980) Adult Basic Literacy Assessment Kit. Victoria B.C.: Queen's Printer.

Canadian Achievement Test. (1982 and possibly updated) Scarborough, ON: McGraw-Hill Ryerson. (May now be Harcourt, Brace, Jovanovich; we are checking, F. and B.A.B.)

APPENDIX E: THE STRUCTURED INTERVIEW FORM

Subject No._____

Date _____

Time _____ _____
Start End

JCP RESEARCH - MILL STUDY 1990

INTERVIEW QUESTIONNAIRE

Item No.	INTERVIEWER QUESTIONS/NOTES	Item No.	RESPONSE CODE
	FIRST, SOME QUESTIONS ABOUT YOU AND WHAT YOU DO.		
1.	When were you born?	1.	___ ___ ___ YY MM DD
2.	Your present age is? YY ___ MM ___	2.	___ ___ YY MM
3.	In what country were you born?	3.	Code: ___
4.	When did you arrive in Canada?	4.	19 ___ YY
5.	Gender 1 Male 2 Female	5.	Option: 1 2
6.	How many dependents do you have? How many people are you supporting?	6.	___
7.	What is your job title; what do they call your job?	7.	Code: ___
8.	When did you start your present job?	8.	___ ___ ___ YY MM DD
9.	Tenure on the job. YY ___ MM ___	9.	___ ___ YY MM
10.	What was your previous job? (in the mill)	10.	Code: ___

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Subject No._____

Item No.	INTERVIEWER QUESTIONS/NOTES	Item No.	RESPONSE CODE
11.	How long did you have that job? YY __ MM __	11.	___ ___ YY MM
12.	How long have you worked in the forest industry? YY ___ MM ___	12.	___ ___ YY MM
13.	What were you doing before entering the forest industry?	13.	Code: ___
	NOW, I WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT YOUR BACKGROUND AND ABOUT YOUR READING AND WRITING ACTIVITIES BOTH ON AND OFF THE JOB		
14.	What language did you first speak as a child?	14.	Code: ___
15.	What language was spoken at home when you were growing up? (2 choices)	15.	Code: ___ Code: ___
16.	What is the language you speak at home most often now?	16.	Code: ___
17.	Do you speak any other language fairly often at home? **1** Yes **2** No	17.	Option: 1 2
18.	Do you speak languages other than English on the job? **1** Yes **2** No	18.	Option: 1 2
19.	If "yes" to #18 then how often?. **1** = most of the time; **2** = frequently; **3** = now and then.	19.	Option: 1 2

Subject No._____

Item No.	INTERVIEWER QUESTIONS/NOTES	Item No.	RESPONSE CODE
20.	Do you read and/or write any of the above-noted languages? **1** Yes **2** No	20.	Option: 1 2
21.	Which do you read/write? (2 choices)	21.	Code: ___ Code: ___
	NEXT - A FEW QUESTIONS ABOUT YOUR EDUCATION AND TRAINING BACKGROUND		
22.	What was the last grade you completed?	22.	___
23.	What year did you complete the above? (Calendar year) 19 ___	23.	19 ___ YY
24.	Where did you attend school? (Country)	24.	Code: ___
25.	If #24 is Canada, what province?	25.	Code: ___
26.	What city or center did you attend?	26.	Code: ___
27.	Since leaving school (K-12), what courses or programs have you started? _____ _____ _____	27	Code: ___
28.	Which of those (in #27) have you completed? _____ _____	28.	Code: ___
29.	Do you have any trade papers or tickets? **1** Yes **2** No	29.	Option: 1 2

Subject No._____

Item No.	INTERVIEWER QUESTIONS/NOTES	Item No.	RESPONSE CODE
30.	Are they government or mill issued? 1 Gov't 2 Mill	30.	Option: 1 2
31.	Do you have other certificates/tickets? If yes, what? _____	31.	Option: 1 2
32.	What level are the tickets?	32.	Option: 1 2
33.	How long have you held the tickets? YY ___	33.	YY ___
	WE HAVE SOME QUESTIONS ABOUT THE VARIOUS KINDS OF COMMUNICATIONS THAT YOU WOULD USE ON A REGULAR BASIS ON THE JOB		
34.	Which of these materials are you expected to read <u>for</u> the job <u>during</u> the average work day? 1 Newsletters 2 Info. Pamphlets, Notices, Memos 3 Equipment manuals 4 Handwritten notes 5 Job Instructions 6 Safety Regulations 7 Collective Agreement	34.	1 1 Yes 2 No 2 1 Yes 2 No 3 1 Yes 2 No 4 1 Yes 2 No 5 1 Yes 2 No 6 1 Yes 2 No 7 1 Yes 2 No
35.	Where would you normally read the above? 1 In the mill 2 Other	35.	Option: 1 2
36.	What do you do when you don't understand written material given to you on the job? 1 Never Happens 2 Ask Fellow Worker 3 Ask Family 4 Take Home To Study 5 Nothing 6 Ask Supervisor 7 Ask Friend 8 Other	36.	1 1 Yes 2 No 2 1 Yes 2 No 3 1 Yes 2 No 4 1 Yes 2 No 5 1 Yes 2 No 6 1 Yes 2 No 7 1 Yes 2 No 8 1 Yes 2 No

Subject No._____

Item No.	INTERVIEWER QUESTIONS/NOTES	Item No.	RESPONSE CODE
37.	Is most of the material that you're required to read: 1 easy 2 about right 3 too difficult	37.	Option: 1 2 3
38.	Which of the following do you read at home in English: 1 = Never 2 = Sometimes 3 = Often 1 2 3 _ _ _ Books _ _ _ Magazines _ _ _ Newspapers _ _ _ Other	38.	1 2 3 _ _ _ Books _ _ _ Magazines _ _ _ Newspaper _ _ _ Other
39.	Do you ever have to write/type? 1 Yes 2 No	39.	Option: 1 2
40.	What kind of material is that (#39) 1 Instructions 2 Memos, requisitions 3 Letters, Reports, Minutes 4 All of Above	40.	1 1 Yes 2 No 2 1 Yes 2 No 3 1 Yes 2 No 4 1 Yes 2 No
41.	Of the following activities, which do you do most frequently? 2nd? 3rd? least Rank the choices: _ Reading _ Writing _ Listening _ Speaking	41.	__ Rdg __ List'g __ Wrtg __ Spkg
42.	Are spoken instructions and/or job information given to you while you're at your work station? 1 Yes 2 No	42.	Option: 1 2
43.	Is it easy to hear the instructions? 1 Yes 2 No	43.	Option: 1 2

Subject No._____

Item No.	INTERVIEWER QUESTIONS/NOTES	Item No.	RESPONSE CODE
44.	If **No** to #43 - Why? **1** Mill Noise **2** Deaf **3** Language **4** Masks **5** Other	44.	Option: 1 2 3 4
45.	Is it easy to **understand** the instructions? **1** Yes **2** No	45.	Option: 1 2
46.	If **No** to #45 - Why? **1** Language **ESL** **2** Complicated **3** Brief **4** Other	46.	Option: 1 2 3 4
	THIS SECTION DEALS WITH TRAINING COURSES		
47.	Have you taken any of the following? If Yes, in what year? **1** English as a Second Language **2** Reading Improvement **3** Writing Skills **4** Math **5** Other **Y / N YY** 1 **1 / 2** ___ 2 **1 / 2** ___ 3 **1 / 2** ___ 4 **1 / 2** ___ 5 **1 / 2** ___	47.	**Y / N YY** 1 **1 / 2** ___ 2 **1 / 2** ___ 3 **1 / 2** ___ 4 **1 / 2** ___ 5 **1 / 2** ___
48.	For those who have **not** taken any courses - why not? **1** No need **2** No desire/interest **3** Not available **4** Too embarrassed **5** No time **6** No advantage **7** Other	48.	1 **1** Yes **2** No 2 **1** Yes **2** No 3 **1** Yes **2** No 4 **1** Yes **2** No 5 **1** Yes **2** No 6 **1** Yes **2** No 7 **1** Yes **2** No
49.	Would you like to take a course to upgrade your **1** reading **2** writing **3** math **4** speaking skills? 1 **1** Yes **2** No 2 **1** Yes **2** No 3 **1** Yes **2** No 4 **1** Yes **2** No	49.	1 **1** Yes **2** No 2 **1** Yes **2** No 3 **1** Yes **2** No 4 **1** Yes **2** No

Subject No._____

Item No.	INTERVIEWER QUESTIONS/NOTES	Item No.	RESPONSE CODE
50.	If the union and management offered a training course in reading, writing, speaking or math skills, would you be more likely to take it if: 1 time off to take it 2 free-but on own time 3 inside mill 4 outside mill 5 it was needed to keep job 6 it would help to get a better job	50.	1 1 Yes 2 No 2 1 Yes 2 No 3 1 Yes 2 No 4 1 Yes 2 No 5 1 Yes 2 No 6 1 Yes 2 No
51.	If **Yes** to any in #50, would you prefer that the course be taken: 1 in the mill? **OR** 2 in a school/college 3 with co-workers? **OR** 4 independently? 5 with mill staff teaching? **OR** 6 with outside staff teaching? 7 other?	51.	Options: 1 OR 2 3 OR 4 5 OR 6 7
52.	What keeps you in the present work situation? 1 Basic Language Skills (or lack) 2 General Education 3 Specific Training 4 Satisfaction 5 Opportunity 6 No opportunity 7 Income 8 Other	52.	1 1 Yes 2 No 2 1 Yes 2 No 3 1 Yes 2 No 4 1 Yes 2 No 5 1 Yes 2 No 6 1 Yes 2 No 7 1 Yes 2 No 8 1 Yes 2 No